REMARKS

In the Office Action of August 19, 2003, the Examiner initially requested the applicant and the assignee of the present application to provide further information that the Examiner has determined reasonably necessary to examine the present application. Specifically, the Examiner has requested the applicant to provide the names of any products or services that incorporate the claimed subject matter. In this regard, the Examiner has requested that the applicant provide copies of each publication that the applicant authored or co-authored that describes the disclosed subject matter. Further, the Examiner requested the applicant to provide a complete list of all related patents and patent applications, both pending and abandoned, that include related applications where the applicant is listed as the co-inventor.

Included with this response is a listing of such material, included with a signed Declaration by the assignee, indicating that the applicant has taken the steps required by the Examiner to comply with the Examiner's request.

Claim Objections

In the Office Action, the Examiner has objected to claims 3, 5-8 and 10-12 as including several informalities identified by the Examiner. By the present response, the applicant has addressed these informalities such that the claims are now believed to be in appropriate condition for allowance.

Rejection Based Upon Jyoraku et al. U.S. Patent No. 4,767,285

In the Office Action, the Examiner rejected claims 3, 5, 7, 8, 11 and 12 under 35 USC §102(b) as being anticipated by the Jyoraku U.S. Patent No. 4,767,285.

The Jyoraku '285 patent is directed to an electric blower that includes an electric motor 15 mounted within a motor housing 1. The motor housing 1 includes upper end bracket 5 and a cylindrical peripheral wall 6. The combination of the peripheral wall 2, peripheral wall 6 and end bracket 5 creates an open internal space 13 that includes the electric motor 15.

The electric blower includes an impeller 20 mounted to the output shaft 16 and enclosed with an end casing 35. The end casing 35 includes a suction opening 36 positioned above the rotating impeller 20.

When the impeller 20 is rotated by the electric motor 15, the impeller draws air through the suction opening 36 as indicated by arrow 61. This air is directed by a guide vane assembly 40 into the plurality of rectangular openings 6a formed in the peripheral wall 6 of the motor housing, as indicated by arrow 63. This flow of air is introduced into the internal space 13 and cools the motor. After cooling the motor, the air is discharged from the internal space 13 through openings (not shown) formed in the housing.

As the above description clearly indicates, the electric blower of the Jyoraku '285 reference includes an impeller that is designed to draw a supply of air into an enclosed housing and direct the supply of air over the electric motor 15. Once the supply of air has been passed over the motor 15, the air is discharged from openings within the housing. The electric blower of the Jyoraku '285 reference does not include any suggestion of drawing exhaust gases from a furnace and expelling these exhaust gases, as required by the present invention.

Independent Claim 3

Independent claim 3 of the present application is directed to a method of both cooling the motor of a blower assembly and expelling exhaust gases from a furnace. In accordance with the method of the present invention, at least one vent aperture is formed in the motor housing such that cooling air can enter into the motor housing through the vent aperture. From the motor housing, the cooling air is drawn into the impeller housing through an inlet port formed between the motor housing and the impeller housing.

In the Jyoraku '285 reference, the supply of cooling air is drawn into the impeller housing and, from the impeller housing, passes into the motor housing to cool the motor, after which time it is expelled to atmosphere. If the teachings of the Jyoraku '285 reference were applied to the blower assembly of the present invention, the expelled exhaust gases from the furnace would be drawn into the impeller housing and, after being drawn into the impeller housing, allowed to pass over the electric motor. This type of

configuration would be completely ineffective, since the expelled exhaust gases are at an elevated temperature and would not cool the driving motor.

Instead, the method of the present invention utilizes the impeller to both draw exhaust gases from the furnace into the impeller housing, while at the same time creating a flow of cooling air through the motor housing. This feature is specifically set forth in independent claim 3, since the method requires forming an inlet port between the motor housing and the impeller housing such that cooling air can enter the impeller housing from the motor housing only through the inlet port.

Independent claim 3 also requires the back plate of the impeller to include at least one aperture such that cooling air can pass through the back plate of the impeller.

In the Jyoraku 285 reference, the impeller 20 is shown and described as having a continuous shroud plate 21, which is equivalent to the back plate of the impeller. Thus, the Jyoraku '285 reference does not teach or suggest, nor render obvious, the use of an aperture in the back plate of the impeller that allows cooling air to pass through the back plate of the impeller.

Further, claim 3 requires the impeller to draw cooling air into the motor housing through the vent aperture such that the cooling air is drawn over the motor and into the impeller housing while at the same time drawing exhaust gases into the impeller housing from the furnace, where the rotating impeller expels both the cooling air and the exhaust gases.

As described above, the Jyoraku '285 reference utilizes an impeller to draw air into the impeller housing where the air can then be directed over the electric motor. The impeller in the Jyoraku '285 reference thus is configured for the exclusive purpose of creating a flow of cooling air over the electric motor. In accordance with the method of claim 3, the method is specifically directed at eliminating the use of an auxiliary fan for the sole purpose of creating such an air flow. Instead, the method of the present invention uses a single impeller to both create a flow of cooling air and draw expelled exhaust gases from a furnace, where the expelled exhaust gases can be expelled from the impeller housing.

For these reasons, independent claim 3 of the present application is believed to be allowable over the Jyoraku '285 reference.

Claims 5 and 6 depend directly or indirectly from claim 3 and are also believed to be allowable based upon the above arguments for allowance.

Independent Claim 7

Independent claim 7 of the present application was also rejected under §102(b) based upon the Jyoraku '285 reference. Independent claim 7 of the present application is directed to a furnace blower assembly that is devoid of an auxiliary cooling fan for creating a flow of cooling air. The Jyoraku '285 reference specifically includes such a cooling fan to direct a flow of cooling air over an electric motor. Thus, the Jyoraku '285 reference is directed to the specific type of subject matter the present invention was developed to eliminate.

Further, independent claim 7 requires the impeller included with the furnace blower assembly to have a back plate where the back plate includes a plurality of apertures that allows a flow of air to pass through the impeller back plate. As described above, the Jyoraku '285 reference does not teach or suggest, nor render obvious, an impeller back plate having a plurality of apertures.

Further, independent claim 7 requires the rotation of the single impeller to both draw cooling air into the motor housing through the vent aperture and to draw exhaust gases from the furnace into the impeller chamber.

As described above, the use of the Jyoraku '285 patent would suggest utilizing the single impeller to draw the expelled exhaust gases into the impeller chamber and subsequently pass the same heated gases over the motor. Such an application would be entirely ineffective in cooling the enclosed motor.

For the above reasons, as well as those presented in the arguments for allowance of claim 3, independent claim 7 is believed to be allowable over the Jyoraku '285 reference.

Further, claims 8, 10-12 are also believed to be allowable over the Jyoraku '285 reference based upon the above arguments for allowance, as well as in view of the subject matter of each of the claims.

**Claim Rejections Under 35 USC §102(f)/103(a)
Based on U.S. Patent No. 6,231,311**

In the Office Action, the Examiner initially rejected claims 7, 11 and 12 under 35 USC §102(f)/103(a) because the applicant did not invent the claimed subject matter. Specifically, the Examiner indicated that claims 7, 11 and 12 were directed to an invention not patentably distinct from that of claims 1, 3, 14, 16, 18 and 25 of U.S. Patent No. 6,231,311.

By the present amendment, the applicant has submitted evidence that the subject matter of the present invention and the subject matter of the '311 patent were commonly owned at the time of the invention of the present application. Further, the applicant has filed a Terminal Disclaimer with respect to the U.S. Patent No. 6,231,311 such that the objection under 35 USC §103(a) has been precluded based upon the '311 reference no longer being available under 35 USC §102(f).

Double Patenting Rejections

In the Office Action, the Examiner initially rejected claims 7, 11 and 12 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over U.S. Patent No. 6,231,311. Further, claims 7, 11 and 12 were rejected as being not directed to a patentably distinct invention from the claims of U.S. Patent No. 6,231,311.

As indicated above, included with this response is a proper showing that the subject matter of the present invention and the subject matter of the U.S. Patent No. 6,231,311 were commonly owned at the time of the invention in the present application. Further, a Terminal Disclaimer is being filed along with the present application with respect to U.S. Patent No. 6,231,311.

In the Office Action, claims 3, 5-8 and 10-12 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 2 and 20 of U.S. Patent No. 6,296,478 in view of the Conner '375 reference.

The '478 patent, which lists the same inventor as the inventor of the present application, was filed on August 3, 2000 and is directed to a furnace and a method of air

cooling a furnace blower motor. In the Office Action, the Examiner cited claims 2 and 20 of the '478 patent. Claim 2 of the '478 patent is directed to a furnace that includes a motor and motor housing where the motor housing has at least one motor housing inlet and at least one motor housing outlet. The furnace further includes a fan driven by the motor where the fan is included in a fan housing and is operatively connected to the motor. The fan rotates to cause a flow of air to flow through the motor housing prior to entering the fan housing. Further, claim 2 requires the fan housing to have a single fan housing inlet and a single fan housing outlet where the single fan housing inlet communicates with the motor housing outlet and the flow of air enters the fan housing through the single fan housing inlet. In general, claim 20 is directed to a method that includes the same limitations as set forth above.

Referring to the drawings and specification of the '478 patent, the single fan housing inlet is clearly shown and described by reference numeral 58, which corresponds to the heat exchanger outlet 56. Thus, gases from the combustion chamber 34 are drawn through the heat exchanger 26 and enter into the fan housing 46 through the single fan housing inlet 58. As clearly set forth in the specification of the '478 patent, cooling air is drawn into the motor housing 40 through the motor housing inlet 42. This flow of cooling air passes over the motor, through the motor housing element 44 and into the combustion chamber 34. From the combustion chamber 34, the air is then drawn into the fan housing through the heat exchanger 26.

Clearly, the flow of air being drawn into the motor housing does not pass directly into the fan housing. Instead, the flow of air passes through the combustion chamber and is finally drawn into the fan housing through the fan housing inlet 58. This type of system is possible since the motor housing 40 is part of a closed system with the combustion chamber 34 and the heat exchanger 26. The rotation of the fan creates a source of negative pressure that draws air into the motor housing. However, the air being drawn into the motor housing is not communicated directly with the fan housing.

Independent claim 3 of the present application requires an inlet port formed between the motor housing and the impeller housing such that cooling air can enter the impeller housing directly from the motor housing only through the inlet port. The

rotation of the impeller also draws the expelled exhaust gases into the impeller housing through an exhaust opening formed in the impeller housing. This exhaust opening corresponds to the inlet fan housing inlet of claims 2 and 20 of the '478 patent.

Thus, the '478 patent does not teach or suggest, nor render obvious, the inlet port formed between the motor housing and the impeller housing such that cooling air can enter the impeller housing directly from the motor housing only through the inlet port.

The Conner '374 patent cited by the Examiner also does not teach or suggest, nor render obvious, an inlet port formed between the motor housing and the impeller housing. Instead, the Conner '374 reference teaches a motor housing having both inlet and outlet openings such that the rotation of an internal fan within the motor housing creates the desired flow of air over the motor to cool the motor.

In the Conner '374 patent, the impeller includes several pressure openings 80 formed in the back plate of the impeller. The pressure openings 80 act to equalize the pressure on each side of the impeller such that a pressure tap 48 can be used to monitor the pressure within the impeller housing. In column 4, lines 54-67, the '374 patent teaches directly away from allowing a flow of cooling air to enter into the impeller housing from the motor housing. Specifically, the patent indicates that a hub clearance 76 generates an air draft around the motor shaft. This air draft generates a negative vacuum to prevent flue gases from exiting where the shaft enters the housing. Thus, the '374 patent clearly indicates that a problem exists in that flue gases can pass out of the impeller housing near the position of the motor housing. Thus, there is clearly not any teaching or suggestion of allowing a flow of air to enter into the impeller housing from the motor housing. Further, since no flow of air is entering into the impeller housing, the openings 80 formed in the fan disc clearly are not included to generate a flow of air into the impeller housing, as is the case in independent claims 3 and 10 of the present application.

Based upon the above arguments, the combination of the '478 patent with the Conner '374 patent clearly does not render the subject matter of claims 3, 5-8 and 10-12 obvious.

In the Office Action, the Examiner also rejected claims 3, 5 and 6 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,318,358.

The '358 patent, which includes the same inventor as the present application, was filed on August 3, 2000 and is directed to a furnace and blower assembly. As required by claims 1-14, the blower includes an impeller that has first and second sets of blades. The second set of blades is for creating a flow of exhaust gases from the heat exchanger, while the first set of blades are arranged on the back plate of the impeller. The first set of blades creates a source of negative pressure to draw cooling air through the motor casing and into the blower housing.

Independent claim 3 of the present invention requires the back plate of the impeller to include at least one aperture such that cooling air can pass through the back plate of the impeller. The use of the aperture formed in the back plate of the impeller allows for air to flow through the back plate and permits the elimination of the second set of blades required by the cited '358 patent. The claims of the '358 patent do not suggest, nor render obvious, the use of such apertures formed in the back plate of the impeller to create a flow of air through the impeller.

In rejecting claims 3, 5 and 6, the Examiner stated that the '358 patent included an aperture, i.e., a shaft hole, to allow cooling air to pass through the impeller. The applicant hereby disagrees with such finding by the Examiner. In the drawings and description of the '358 patent, the first set of blades 74 was specifically included on the impeller to create a suction to draw cooling air through the interior of the motor casing 26 and into the blower housing. As clearly illustrated by the arrows in Fig. 7, this flow of air does not pass through the back plate of the impeller. Instead, the flow of air is directed radially outward, as clearly indicated by the arrow.

In the Office Action, the Examiner seems to indicate that a hole in the impeller that allows the shaft to pass through and be attached to a bushing is equivalent to the aperture required by claim 3 of the present application. Clearly, the aperture required by claim 3 allows cooling air to pass through the back plate of the impeller. Clearly, the shaft hole in the impeller of the '358 patent is for the sole purpose of allowing the motor shaft to be

attached to the impeller. There is no teaching or suggestion, nor any evidence, that the shaft hole allows air to pass through the impeller. Instead, the remaining portions of the '358 patent teach directly away from this feature, since the included first impeller blades are positioned for the sole purpose of creating the required air flow into the impeller housing. If the shaft hole were sufficient to allow such flow of air, the additional fan blades 74 could be eliminated.

Based upon the above arguments, claims 3, 5 and 6 are not rendered obvious by the subject matter of claims 1-14 of the cited '358 patent. For this reason, claims 3, 5 and 6 are believed to be allowable over the '358 patent.

Conclusion

By the present amendment, claims 3, 5-8 and 10-12 have been amended to more particularly define and specifically point out the inventive features of the present application. Based upon the above arguments for allowance, the Examiner is requested to pass these claims to allowance. The Examiner is invited to contact the applicant's undersigned attorney with any questions or comments, or to otherwise facilitate prosecution of the present application.

Respectfully submitted,

ANDRUS, SCEALES, STARKE & SAWALL, LLP

By _____
Joseph D. Kuborn - Reg. No. 40,689

Andrus, Sceales, Starke & Sawall, LLP
100 East Wisconsin Avenue, Suite 1100
Milwaukee, WI 53202
(414) 271-7590
Attorney Docket No.: 99917 (4497-4)